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Before the
Federal Communications Commission
Washington, D.C. 20554

FCC MAIL SECTION

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REC-93-484

DISPATCHED BY

In the Matter of)

Petition to Amend Part 68 of the)
Commission's Rules to Include)
Terminal Equipment Connected to)
Basic Rate Access Service Provided)
via Integrated Services Digital)
Network Access Technology)

and)

In the Matter of)

Petition to Amend Part 68 of the)
Commission's Rules to Include)
Terminal Equipment Connected to)
Public Switched Digital Service)

and)

Correction of Part 68 Typographical)
Errors, Clarifications and a Proposal)
for Part 68 Registration Revocation)
Procedures)

CC Docket No. 93-268 ✓

RM 7815

RM 6147

NOTICE OF PROPOSED RULEMAKING

Adopted: October 22, 1993

Released: November 22, 1993

Comment Date: January 13, 1994

Reply Comment Date: January 28, 1994

By the Commission:

I. INTRODUCTION

1. By this Notice of Proposed Rulemaking we propose to amend Part 68 of the Commission's Rules and Regulations, 47 C.F.R. Part 68, which governs the terms and conditions for connection of customer-provided terminal equipment to the telephone network. Part 68 is designed to assure consumers, manufacturers and carriers that terminal equipment may be connected to the telephone network

without causing harm.¹ This proceeding was initiated by two petitions for rule-making, one filed by Southwestern Bell Telephone Company and the other by Ameritech Operating Companies, requesting the addition of switched digital services to Part 68.² We also propose to add a registration revocation procedure that should greatly enhance our ability to enforce Part 68 and the Telecommunications Trade Act of 1988.³ Finally, we are also taking this opportunity to propose clarifications to some rules in Part 68.

II. PROPOSALS FOR ISDN & PDS EQUIPMENT STANDARDS

A. Terminal Equipment for Basic Rate and Primary Rate Access

2. The petition filed by Southwestern Bell Telephone Company (SWB), (RM-7815), requests amendment of Part 68 to include terminal equipment connected to the two-wire Basic Rate Access (BRA) interface and to the Primary Rate Access (PRA) interface provided by the Integrated Services Digital Network (ISDN) access technology. BRA consists of one or two 64 Kbps information channels with a 16 Kbps channel for dialing and network access information. The 1.544 Mbps PRA consists of 23 64 Kbps information channels and the 16 Kbps dialing and network access channel. ISDN has been in a developmental phase during the past decade. In the past three or four years it has been deployed primarily in an experimental mode. The Public Notice of SWB's petition elicited comments by eight parties and reply comments by three.⁴ There was overwhelming support for including this service in Part 68 in order to promote rapid exploitation of this technology on a nationwide (and worldwide) basis. In the words of IDCMA:

The greatest virtue of adopting Part 68 rules for equipment connected to ISDN services is that establishment of a single set of technical standards will articulate the minimum mandatory criteria for connection of CPE [customer premises equipment]

¹ For a history of Part 68, see Memorandum Opinion and Order, Docket Nos. 19528, 20774 and 21182, 70 FCC 2d 1800 (1979).

² Standards for non-switched leased-line digital services were added to Part 68 in Docket 81-216 in 1985 and included 56 Kbps and lower subrate services and the 1.544 Mbps (T-1) service.

³ The Telecommunications Trade Act of 1988 requires that all telecommunications equipment imported into the U.S. meet FCC rules and regulations.

⁴ Comments were filed by American Telephone & Telegraph Co. (AT&T), The Ameritech Operating Companies (Ameritech), The Bell Atlantic Telephone Companies (Bell Atlantic), Independent Data Communications Manufacturers Association (IDCMA), The NYNEX Telephone Companies (NYNEX), Pacific Telesis Group (Pacific), The Southern New England Telephone Company (SNET), and the U.S. West Communications (US West). Reply comments were filed by Independent Data Communications Manufacturers Association (IDCMA), Southwestern Bell Telephone Company (SWBT) and the United States Telephone Association (USTA).

throughout the country. This will eliminate the serious problem which manufacturers currently encounter, that is, the imposition of differing requirements for the connection of customer-provided equipment to ISDN services.

Thus, we propose for comment technical standards in Part 68 of our rules.

3. AT&T in its comments notes that SWB's petition was limited to the 2-wire ISDN BRA service. ANSI, AT&T says, has also approved performance and compatibility standards for terminal equipment connected to the 4-wire ISDN PRA (1.544 Mbps) interface. The same considerations of encouraging development of ISDN terminal equipment, industry uniformity, and worldwide compatibility of equipment connected to the BRA interface apply equally to PRA interface. Accordingly, AT&T states Part 68 should be amended at this time to provide equipment specifications for both the PRA and BRA interfaces. We agree that it is in the public interest to include AT&T's suggestions for adding ISDN PRA services for comments.

4. AT&T also notes that SWB's petition would add a new Section 68.310(m) to introduce a "longitudinal-to-metallic" (L-M) balance requirement for equipment connected to the ISDN interface. AT&T states that the L-M balance concept was turned down by the Commission in previous rulemakings in favor of the "metallic-to-longitudinal" (M-L) balance methodology currently in the rules.⁵ As AT&T points out, the L-M methodology is considered to be a performance measure, and this is not a primary concern of Part 68. We note that longitudinal balance is a technical measure of crosstalk interference that terminal equipment may induce in cables running to the central office. An M-L longitudinal balance requirement squarely addresses crosstalk which is a harm to the network and thus within Part 68's purview. We also note that Canada's CS-03 network protection standard (equivalent to Part 68) specifies the same M-L longitudinal balance requirement for ISDN BRA and PRA that is currently specified in Part 68's Section 68.310(l). Thus, we propose that new rules reflect a metallic-to-longitudinal requirement.

5. AT&T also recommends that Section 68.308(h)(2) should be amended to apply its limitations on encoded analog content to PRA terminal equipment, comparable to the limitations SWB suggested in Section 68.308(h)(3) for BRA terminal equipment. Also, AT&T recommends that the signaling interface requirements in Section 68.314(d)(2) should also apply to ISDN terminal equipment, in that ISDN equipment has the same potential for signaling interference as other digital equipment connected to the analog network. The rules we present for comment reflect these recommendations. Finally, AT&T states that through-gain limitations in Section 68.308(b)(5) should be established for ISDN services. We understand that this is a current project for Telecommunication Industry Association's TR-41 Committee, and we anticipate appropriate

⁵ See In the Matter of Petitions Seeking Amendment of Part 68 of the Commission's Rules, Third Report and Order, CC Docket No. 81-216, 59 FCC 2d 881, (1985). See also, Memorandum Opinion and Order, CC Docket No. 19528, 58 FCC 2d 716, 729 (1975); Memorandum Opinion and Order, CC Docket No. 19528, 64 FCC 2d 1058, 1068-69 (1977).

recommendations will be provided in this proceeding.

6. The types of plug-jack connectors to be used for ISDN services engendered comment. Ameritech, for example, says that the ANSI standard for BRA proposes an eight-position non-keyed jack in which two positions are reserved for battery, two for power, two for optional features and one each for the tip and ring connections to the service itself. Ameritech says that it offers ISDN BRA via the standard RJ11C jack. (The RJ11C provides connections for two wires, although the jack itself can accommodate up to six wires.) Ameritech says that most ISDN compatible equipment can already accommodate such a connection, and that its companies have no immediate plans to utilize either the battery or the power positions. Therefore, it argues that there is no need to require the eight-position jack. It notes that manufacturers who "build-to" the eight-position interface could provide connection to the type RJ11C through a simple six-position to eight-position double-male adapter. On the other hand, U S West recommends that the jack type SJA-11 (8-position) proposed by the Exchange Carriers Standards Association's T1E1 Technical Subcommittee be approved by the Commission's tariff implementation procedure.⁶ We solicit comments on these proposals for ISDN BRA and PRA interface connectors and for suitable connectors for the PSDS service.⁷

(B) Terminal Equipment for Public Switched Digital Service

7. The petition filed by Ameritech, (RM-6147), requests amendment of Part 68 to include terminal equipment that connects to the Public Switched Digital Service (PSDS). The Public Notice of Ameritech's petition elicited comments by two parties and reply comments by two parties.⁸ According to Ameritech, PSDS is "a network service that provides a transparent switched digital network service" and supports rates of 56 Kbps or 64 Kbps utilizing time compression multiplexing (TCM) technology. As the result of joint comments by Mountain States Telephone Company, Northwestern Bell Telephone Company and Pacific Northwestern Bell Telephone Company (MNP), equipment standards for a four-wire 56 Kbps service are also included for comments. It is important to note that all three

⁶ See Section 68.104(c) for the Tariff Description alternative.

⁷ In late filed comments, the Exchange Carriers Standards Association's T1 Committee offers its recommendations for network connectors for ISDN Basic Rate Access and the Public Switched Digital Services as follows:

- For 2-wire ISDN(BRA), connection of a single line: RJ11C.
- For 2-wire PSDS, connection of a single line: RJ11C.
- For 2-wire ISDN (BRA) and PSDS, connection of multiple lines: RJ21X.
- For 4-wire PSDS, connection of a single line: RJ1DC.
- For 4-wire PSDS, connection of multiple lines: RJ2DX.

Comments on these recommendations are also requested.

⁸ Comments were filed by AT&T and joint comments by MNP. Reply comments were received from Ameritech and IDCMA.

technologies (56 and 64 Kbps time compression and 4-wire 56 Kbps switched services) are call-compatible and a performance and compatibility standard for the three has recently been published by the Telecommunications Industries Association (TIA).⁹ The TIA standard identifies PSDS Type I as a 4-wire switched 56 Kbps service. This service utilizes 4-wire 56 Kbps channel service units, which for the most part, have been registered under Part 68 and can be used or readily adapted for use for this class of service.¹⁰ PSDS Type II is a 2-wire switched 56 Kbps device that makes use of TCM technology. PSDS Type II has two modes, an analog mode for switching purposes and a digital information carrier channel. PSDS Type III service is a 64 Kbps full duplex service with an 8 Kbps call setup and switching channel and also uses TCM technology. Although not discussed in the petitions, we note that a new technology known as "inverse multiplexing" or "bandwidth on demand" is being deployed which permits customers to utilize the PSDS and ISDN BRA technologies to order wider bandwidths in multiples of 56 or 64 Kbps. Commenters should address whether inverse multiplexing utilizing n(56/64) Kbps channels, including other bandwidths, such as 128 Kbps and 384 Kbps, require consideration under Part 68.

8. We have included Ameritech's proposal for PSDS Types II and III and also a proposal for PSDS Type I as recommended by MNP. No additional Part 68 requirements are proposed in this notice for PSDS Type I as this equipment is substantially the same as the leased-line versions already in the rules. The pulse templates for PSDS Types II and III, included in Section 68.308(h)(3)(ii), are those proposed by Ameritech and modified by AT&T's comments. We included Ameritech's proposal regarding longitudinal balance requirements for PSDS which includes a correction in longitudinal termination applicable to subrate, 1.544 Mbps (T-1), PSDS, ISDN (PRA & BRA) digital services. AT&T's minor technical and editorial corrections have been included.

III. PART 68 REGISTRATION REVOCATION PROCEDURES

9. In the First Supplemental Notice, released April 3, 1973, 40 FCC 2d 315 at 316 (1973), the Commission outlined the intent of newly proposed Part 68: "Registration would constitute authorization for the equipment to be directly connected to the switched telephone network. However, in appropriate cases, registration could be revoked." However, the Commission's rules do not include Part 68 equipment authorization revocation procedures.¹¹ The continued

⁹ Network Channel Terminating Equipment of Public Switched Digital Service, EIA/TIA-596, Electronic Industries Association/Telecommunications Industries Association. (This specification covers the 56 Kbps and 64 Kbps time compression multiplexing (TCM) technologies and the 4-wire switched 56 Kbps technology.)

¹⁰ We estimate that approximately 1000 different models of leased-line channel service units have been registered, many of which are already in use for PSDS Type I switched 56 Kbps service. Only a dialing capability has been added.

¹¹ Although there are provisions in Part 68 which contemplate revocation (i.e., Section 68.202 requires the Commission to maintain lists of equipment for which it has revoked registration, and Section 68.218(c) requires the grantee

authorization of a piece of equipment under Part 68, where that authorization was obtained by fraud, or where continued use of the equipment may be destructive to the telephone network, is not in the public interest. Thus, we propose equipment revocation procedures.

10. We note that sometimes forfeiture penalties alone do not address the issue of the continued viability of equipment registrations which have been obtained by misrepresentation or which do not reflect the specifications of the equipment actually being manufactured. Accordingly, we propose a rule subjecting non-compliant Part 68 registrants to possible revocation of the equipment registration. The proposed rules state that any registrant: (1) who has obtained an equipment registration by misrepresentation, or (2) whose equipment is shown to cause harm to the network, or (3) who willfully or repeatedly failed to comply with the terms of a Part 68 registration, or (4) willfully or repeatedly failed to comply with any of the provisions of the Communications Act of 1934, as amended; or of any rule, regulation or order issued by the Commission under that Act, may be subject to revocation of the Part 68 registration. We believe that such a rule gives registrants notice that non-compliant equipment cannot be sold for connection to the network and that registrations for equipment that may cause harm to the network may be made void.

11. Procedurally, we propose that a Notice of Intent to Revoke Equipment Registration be served upon an apparently non-compliant registrant. The proposed revocation procedures track closely established Commission procedure for Notices of Apparent Liability for assessment of a monetary penalty.¹² A Notice of Intent to Revoke would, *inter alia*: (1) identify the Commission rule or federal law the registrant apparently violated or failed to comply with, (2) state the nature of the conduct at issue and the date of the occurrence(s), and (3) give notice to the registrant that a registrant whose registration is revoked may not apply for a registration for the same product for a period of six months from the date of the revocation. The prohibition on reapplication for a period of six months after revocation is intended to prevent registrants who violate the rules from simply obtaining a new registration immediately following a revocation. Currently, a Part 68 registration application can be processed and granted by the Commission in approximately 15 days. Effective enforcement of the rules is made difficult if a registrant who has violated the rules can obtain a new registration for the same product only fifteen days after a revocation.

We also clarify that revocation of an equipment registration may be imposed in addition to or in lieu of an amount in forfeiture pursuant to Section 1.80 of our rules. Therefore, we propose that a Notice of Intent to Revoke may be served concurrently with and as a part of any Notice of Apparent Liability. In the case of joint Notice of Apparent Liability and Intent to Revoke, Section 1.80 of our rules would govern all procedural issues. Finally, after a respondent has had the opportunity to respond to a Notice of Intent to Revoke, the Commission would

of an equipment authorization which has been revoked to insure that users of the equipment are notified of the revocation) no procedures are in place to notify registrants of potential revocation and establish a framework for making a revocation determination.

¹² See 47 C.F.R. § 1.80.

issue either a Notice of Revocation or an Order Terminating a Notice of Intent to Revoke. In those cases where there is a material dispute of fact involved, the Commission would, if appropriate, designate the proceeding for hearing before an administrative law judge. We seek comments on these proposed procedures.

12. We emphasize that these proposed revocation procedures are in addition to forfeiture penalties which may be assessed pursuant to Section 1.80 of the Commission's rules against any person who repeatedly or willfully violates the Commission's rules.

IV. CLARIFICATION PROPOSALS

13. In addition comments are solicited on the following proposed clarifications:

(a) In Sections 68.2(j) and (k) we propose to eliminate the term "protective circuitry." It appears that such an equipment category is currently not needed, nor will it be needed for implementation of the grandfathering or registration program for ISDN and PSDS.

(b) In Section 68.3, "Definitions", we propose to modify the term, "Test Equipment", to indicate that registration is not required for hand-held data terminals, line men's handsets and subscriber line diagnostic equipment used by telephone companies for installation and maintenance of network facilities on the basis that such facilities are outside the scope of Part 68's network protection goal.

(c) In Figure 68.3(a), the maximum voltage value in the associated table is corrected to read 56.5.

(d) In Figure 68.3(g), Note 4, the reference to 59.5 volts is amended to - 59.5 volts (with the addition of a minus sign).

(e) In Section 68.104(b), the correct reference is to Section 68.308(b) (4) (i) or (ii).

(f) In Section 68.200 and in Part 2, Subpart L, Section 2.1302, we propose to reduce the number of copies of Part 68 applications to be submitted to an original and one copy from an original and two copies.

(g) In Section 68.200(d) we propose changing the statement that the Office of Engineering and Technology may issue an OET bulletin describing acceptable test methods to "The Common Carrier Bureau will publish a Registration Application Guide with a list of acceptable test procedures; other test procedures may be employed provided they are fully described in the application and are found acceptable by the Commission."

(h) We have had numerous requests to simplify FCC labelling requirements for devices that are too small to display all of the currently required information. Thus, when the device is so small or for such use that it is not practical to place the labelling information on the device itself, we propose a change to §68.300 that would require the FCC Registration Number and the qualifying

device's model number to be displayed on the device and that other information required by that section be provided in the instruction manual. (Country-of-origin is already embedded in the FCC Registration Number.) All letters in the label must be discernible without magnification.

(i) In Section 68.308(i), the second sentence should read, "The pair not under test should be terminated in an impedance of 600 ohms."

(j) In Section 68.308((b)(7)(ii)(C), a table is inserted after the colon, as follows:

	: R2 + RL :	
CONDITION	CLASS B	CLASS C
1	600	1300
2	1800	2500

(k) In Section 68.308(f)(2)(ii), the second line of the table should be corrected to read: 120 kHz to 266 KHz.....

(l) Several parties brought to our attention that in the table in Section 68.310 for items (b), (e), (g) and (i), the 60dB requirement should apply only to the on-hook state and the requirement of 40dB in the on-hook state applies from 1000-4000Hz and in the off-hook state from 200-4000Hz. The table included herein has been revised by TIA subcommittee, TR-41.9, and is submitted for comments.

(m) In Section 68.310(1), the termination impedance for longitudinal balance requirements is corrected to 90 ohms (instead of 500 ohms).

(n) In Section 68.312(b)(2), the reference to "paragraph (a)(1)(v) of this section" should be changed to "paragraph (b)(1)(v) of this section".

(o) In Section 68.312(c)(2), the reference to Section 68.312(a)(2) should be changed to Section 68.312(b)(2).

(p) In Section 68.312(h), the word "tip" in the phrase "shall not tip" should be corrected to "trip" and the word "trip" in the phrase "trip-to-ring" should be corrected to "tip-to-ring".

V. REGULATORY FLEXIBILITY ACT INITIAL ANALYSIS

14. Reason for Action. The Commission is issuing a Notice of Proposed Rule Making to provide an opportunity for public comment and to provide a record for Commission decision on the issues stated.

15. Objectives. The objective of this Notice of Proposed Rule Making is to amend Part 68 to include terminal equipment for use with the Integrated Services Digital Network and the Public Switched Digital Services; to correct

typographical errors; to request comments on proposed clarifications; and to develop a registration revocation procedure.

16. Legal Basis. The Communications Act of 1934, as amended, 47 U.S.C. §§151 et seq.

17. Description, potential impact and number of small entities affected. It is likely to increase minimally production costs of some CPE manufacturers.

18. Record keeping requirements. None.

19. Federal rules which overlap, duplicate or conflict with the Commission's proposal. None.

20. Any significant alternatives minimizing impact on small entities and consistent with the stated objective. None.

21. Comments are solicited. We request written comments on this Initial Regulatory Flexibility Analysis. These comments must be filed in accordance with the same filing deadlines set for comments on other issues in the Notice for Proposed Rule Making, but they must have a separate and distinctive heading designating them as responses to this regulatory flexibility analysis. The Secretary shall send a copy of this Notice to the Chief Counsel of Advocacy of the Small Business Administration in accordance with Section 603(a) of the Regulatory Flexibility Analysis Act. 5 U.S.C. §601, et seq.

VI. PROCEDURAL MATTERS

22. This is a nonrestricted notice and comment rulemaking proceeding. Ex Parte presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in Commission rules. See generally 47 C.F.R. Sections 1.1202, 1.1203, and 1.1206(a).

23. Pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415 and 1.419, interested parties may file comments on or before January 13, 1994 and reply comments on or before January 28, 1994. To file formally in this proceeding, interested parties must file an original and four copies of all comments, reply comments, and supporting documents with the reference number CC Docket No. 93-268 on each document. If interested parties want each Commissioner to receive a personal copy of comments, interested parties must file an original plus nine copies. Interested parties should send comments and reply comments to the Office of the Secretary, Federal Communications Commission, Washington, DC 20554. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center, Room 239, Federal Communications Commission, 1919 M Street N.W., Washington, DC. Copies of comments and reply comments are available through the Commission's duplicating contractor: International Transcription Service, Inc. (ITS, Inc.) 2100 M Street, N.W., Suite 140, Washington, DC 20037, (202) 857-3800.

VII. ORDERING CLAUSES

24. Accordingly, It is Ordered, That, pursuant to Sections 1, 4(i), 4(j), 201-205 and 403 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 151, 154(i), 154(j), 201-205, 225 and 403, notice is hereby given of our intent to adopt the rules proposed in Appendix A.

25. It is Further Ordered, That, pursuant to the requirements of Section 604 of the Regulatory Flexibility Act, 5 U.S.C. 604, the Secretary shall cause a summary of this Notice of Proposed Rulemaking to be published in the Federal Register which shall include a statement describing how members of the public may obtain such copies. The Secretary shall also provide a copy of this Notice of Proposed Rulemaking to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION


William F. Caton
Acting Secretary

APPENDIX A

Part 2 and Part 68 (Chapter 1 of Title 47 of the Code of Federal Regulations) are proposed to be amended as follows:

Part 2 - Frequency Allocations and Radio Treaty Matters; General Rules and Regulations

1. The authority citation for Part 2 continues to read as follows:

Authority: 47 U.S.C. 154, 202, 203, 204, 205, 208, 215, 218, 313, 314, 404, 410, 602 unless otherwise noted.

2. Section 2.1302 is amended to read as follows:

An original and one copy shall be filed on FCC Form 730

* * * * *

Part 68 - Connection of Terminal Equipment to the Telephone Network

The Authority citation for Part 68 continues to read as follows:

Authority: Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082; (47 U.S.C. 154, 155, 303).

3. Section 68.2 is proposed to be amended by revising paragraph (a) to read as follows:

Section 68.2 (a) General. Except as provided in Paragraphs (b), (c), (d), (e), (f), (g), (h), (i), (j) and (k), the rules and regulations in that Part apply to direct connection:

* * * * *

(9) Of all terminal equipment to Public Switched Digital Service (PSDS Type I, II or III).

(10) Of all terminal equipment to the Integrated Services Digital Network (ISDN) Basic Rate Access (BRA) or Primary Rate Access (PRA).

* * *

(j) Grandfathered equipment for connection to PSDS (Type I, II or III).

(1) Terminal equipment, including its premises wiring directly connected to PSDS (Type I, II or III) on (grandfather eligibility date), for life without registration, unless subsequently modified.

(2) New installation of terminal equipment, including premises wiring, may be installed up to (register only date) without registration of any terminal equipment involved, provided that the terminal equipment is of a type directly

connected to PSDS (Type I, II or III) as of (grandfather eligibility date). This terminal equipment may remain connected and be reconnected to PSDS (Type I, II or III) for life without registration unless subsequently modified.

(k) Grandfathered equipment for connection to ISDN BRA or PRA:

(1) Terminal equipment, including its premises wiring directly connected to ISDN BRA or PRA on (grandfather eligibility date), may remain connected to ISDN BRA or PRA for life without registration, unless subsequently modified.

(2) New installation of terminal equipment, including premises wiring may be installed up to (register only date) without registration of any terminal equipment involved, provided that the terminal equipment is of a type directly connected to ISDN BRA or PRA as of (grandfather eligibility date). This terminal equipment may remain connected and be reconnected to ISDN BRA or PRA for life without registration unless subsequently modified.

* * * * *

4. Section 68.3 is proposed to be amended by adding the following Definitions in alphabetical order as follows:

ISDN Basic Rate Interface: A two-wire, full-duplex echo canceler hybrid interface between the terminal equipment and ISDN BRA. The tip and ring leads shall be treated as telephone connections for the purpose of fulfilling registration conditions.

ISDN Primary Rate Interface: A four-wire point of connection between the terminal equipment and 1.544 Mbps ISDN PRA. The tip, ring, Tip-1, and ring-2 leads shall be treated as telephone connections for the purpose of fulfilling registration conditions.

PSDS Type II Analog Mode Loop Simulator Circuit: A circuit simulating the network side of the two-wire telephone connection that is used for testing terminal equipment to be connected to the PSDS Type II loops. Figure 68.3(m) shows the type of circuit required. Other implementations may be used provided that the same dc voltage and current characteristics and ac impedance characteristics as are as presented in the illustrated circuit. When used, the simulator should be operated over the entire range of loop resistances, and with the indicated voltage limits and polarities. Whenever the loop current is changed, sufficient time shall be allowed for the current to reach a steady-state condition before continuing testing.

Public Switched Digital Service Type I (PSDS Type I): This service functions only in a digital mode. It uses a transmission rate of 56 Kbps on both the transmit and receive pairs to provide a four-wire full duplex digital channel. Signaling is accomplished using bipolar patterns which include bipolar violations.

Public Switched Digital Service Type II (PSDS Type II): This service functions in two modes, analog and digital. Analog signaling procedures are used to perform supervisory and address signaling over the network. After an end-to-end connection is established, the Switched Circuit Data Service Unit (SCDSU) is switched to the digital mode. The time compression multiplexing (TCM) transmission operates at a digital transmission speed of 144 Kbps to provide

full-duplex 56 Kbps on the two-wire access line.

Public Switched Digital Service Type III (PSDS Type III): This service functions only in a digital mode. It uses time compression multiplexing (TCM) rate of 160 Kbps, over one pair, to provide two full-duplex channels. One is an 8 Kbps signaling channel for supervisory and address signaling and the other is a 64 Kbps user data channel on a two-wire access line.

Switched Circuit Data Service Unit (SCDSU): A CPE device, with PSDS functionality, located between the Network Interface and the data terminal equipment. (It is also sometimes referred to as Network Channel Terminating Equipment.)

5. Section 68.3 is proposed to be revised to correct the definition for Test Equipment to read as follows:

* * * * *

Test Equipment. Equipment connected at the customer's premises that is used on the customer's side of the network interfaces: (a) to measure characteristics of the telephone network; or (b) to detect and isolate a communications fault between a terminal equipment entity and the telephone network. Registration is required for test equipment capable of functioning as portable traffic recorders or equipment capable of transmitting or receiving test tones; except registration is not required for hand-held data terminals, linesmen's handsets, and subscriber line diagnostic devices used by telephone companies solely for network installation and maintenance activities.

* * * * *

6. Section 68.3 is proposed to be amended by revising the reference to the test configuration in the definition of the Zero Level Decoder to read as follows:

* * * * *

Zero Level Decoder: A decoder that yields an analog level of 0 dBm at its output when the input is the digital milliwatt signal. See Figure 68.3(1).

* * * * *

7. Section 68.3 is proposed to be revised to correct the maximum voltage value in the table for Condition 1 to be 56.5.

8. Section 68.3, 47 C.F.R. § 68.3, is proposed to be revised to correct the last sentence in Figure 68.3(g) Note 4 as follows:

Thus, if the registered terminal equipment provides -42.5 to -56.5 volts, the overall circuit (simulator and PBX AIOD) shall be tested over the range of -39.5 to -59.5 volts.

* * * * *

9. Section 68.104 is proposed to be amended by revising paragraph (b) to read as follows:

* * * * *

(b) Data Equipment. Where a customer desires to connect data equipment which has been registered in accordance with Section 68.308(b)(4)(i) or (ii), he shall notify the telephone company of each telephone line to which he intends to

connect such equipment.

* * * * *

10. Section 68.200 is proposed to be corrected to read as follows:

An original and one copy....

11. Section 68.200 is proposed to be amended by revising paragraph (d) read as follows:

* * * * *

(d) A statement that the terminal equipment or protective circuitry complies with and will continue to comply with the rules and regulations in Subpart D of this part, accompanied by such test results, description of test procedures, analyses, evaluations, quality control standards and quality assurance standards as are necessary to demonstrate that such terminal equipment or protective circuitry complies with and will continue to comply with all the applicable rules and regulations in Subpart D of this part. The Common Carrier Bureau will publish a Registration Application Guide with a list of acceptable test procedures; other test methods may be employed provided they are fully described in the application and are found acceptable by the Commission.

12. A new Section 68.211 is proposed to be added to read as follows:

Section 68.211, Registration Revocation Procedures.

(a) The Commission may revoke the registration of a Registrant:

- (1) Who has obtained the equipment registration by misrepresentation; or,
- (2) Whose registered equipment causes harm to the network; or,
- (3) Who willfully or repeatedly failed to comply with the terms of the Part 68 registration; or,
- (4) Who willfully or repeatedly failed to comply with any of the provisions of the Communications Act of 1934, as amended; or of any rule, regulation or order issued by the Commission under that Act.

(b) In the discretion of the Commission, a Part 68 registration revocation proceeding may be initiated by either

- (1) Issuing a Notice of Intent to Revoke Part 68 Registration pursuant to this subsection, or
- (2) Issuing a Joint Notice of Apparent Liability and Intent to Revoke Part 68 Registration pursuant to Section 1.80 of this Chapter.

(i) Notice of Intent to Revoke Part 68 Registration. Before revoking a Part 68 registration under the provisions of this paragraph, the Commission or its designee will issue a written Notice of Intent to Revoke Part 68 Registration.

(A) Content of the Notice. The Notice of Intent to Revoke Part 68 Registration will:

(1) Identify each specific provision, term, or condition of any act, rule, regulation, order or terms of registration which the respondent has apparently violated or with which he has failed to comply,

(2) Set forth the nature of the act or omission charged against the respondent and the facts upon which such charge is based,

(3) State the date(s) on which such conduct occurred, and

(4) Specify the registration number of the registration(s) at issue,

(5) Specify that in the event of revocation the registrant may not reapply for registration of the same product for a period of six months,

(6) Specify that revocation of the registration may be in addition to any liability for an amount in forfeiture pursuant to Section 1.80 of the rules.

(B) Delivery. The Notice of Intent to Revoke Part 68 Registration will be sent to the respondent at its address as certified by the respondent in the Part 68 application associated with the registration at issue, by certified mail.

(C) Response. The respondent will be afforded a reasonable period of time (usually 30 days from the date of the notice) to show, in writing, why the Part 68 registration should not be revoked.

(D) A registrant whose registration has been revoked may not apply for a registration for the same product for a period of six months from the date of the revocation of the registration.

(E) A registrant who is issued a Revocation of Equipment Registration and/or Liability may request reconsideration or administrative appeal of the decision pursuant to Part 1 of the Commission's rules - General Rules of Practice and Procedure.

* * * * *

13. Section 68.300 is proposed to be amended by adding new paragraph (c):

* * * * *

(c) When the device is so small or for such use that it is not practical to place the labelling information specified in paragraphs (a) and (b), the information required by these paragraphs shall be placed in a prominent place in user instructions. However, the FCC Registration Number and the device Model Number must be displayed on the device. All lettering on the label must be legible.

* * * * *

14. Section 68.308 is proposed to be amended to read as follows:

(a) General. Limitation on signal power shall be met at the interface for all 2-wire network ports, tip and ring conductors to PSDS Types II and III, and, where applicable to services, both transmit and receive pairs of all 4-wire network ports. Signal power measurements will be made using terminations as specified in each of the following limitations. The transmit and receive pairs of 4-wire network ports shall be measured with the pair not under test connected to a termination equivalent to that specified for the pair under test. Through-gain limitations apply only in the direction of transmission to the network.

* * *

(b) (1) (viii) For PSDS (Types II and III)) terminal equipment when in the digital mode of transmission, the maximum equivalent power of any encoded analog signal (other than live voice) shall not exceed -12dBm over any 3-second interval. The equivalent analog power shall be derived by a zero-level decoder located at the network interface to PSDS (Type II or III) facilities.

* * *

(b) (2) (iii) For PSDS (Types II and III) terminal equipment, when in the digital mode of transmission, the maximum equivalent power of any encoded analog signal shall not exceed -3dBm when averaged over a 3-second time interval. The equivalent analog signal shall be derived by a zero-level decoder located at the network interface to PSDS (Types II or III) facilities.

* * *

(b) (5) (i) (I) The designation PSDS (Types II and III) in the table refers to the requirement for terminal equipment connected to PSDS (Types II and III) facilities when such equipment is in the digital mode of transmission. When the PSDS (Type II) is in the analog mode of transmission, the requirements for connection to the public switched network apply - See RTE entries. (For PSDS Type I, see DDS/HCC entries.)

* * *

(b) (5) (i) (J) , a table is proposed to be inserted, as follows:

MAXIMUM ALLOWABLE NET AMPLIFICATION BETWEEN PORTS (A) (D) (E) (F)

From (F) \ To		The Trunk Type Ports (C)					PSDS (I)	OPS Ports (2-Wire) (B)	Public Switched Network Ports (2 Wire)	HCC Digital PBX-CO 4 Wire
		2 Wire	4 Wire Lossless	4 Wire CTS	DDS/HCC Digital PBX- Satellite 4-Wire	DDS/HCC Digital PBX- PBX 4-Wire				
The Trunk Type Ports (C)	2-W	0dB avg 1.5dB max	0dB avg 1.5dB max	-4dB nom.	0dB avg 1.5dB max	3dB avg 4.5dB max	3dB avg 4.5dB max	-2dB avg -0.5dB max	-	-
	4-W Lossless	0dB avg 1.5dB max	0dB avg 1.5dB max	-4dB nom.	0dB avg 1.5dB max	3dB avg 4.5dB max	3dB avg 4.5dB max	-2dB avg -0.5dB max	-	-
	4-W CTS	-4dB nom.	-4dB nom.	-8dB nom.	-4dB nom.	-1dB nom.	-1dB nom.	-6dB nom.	-	-
	DDS/HCC Digital PBX- Satellite 4-W	0dB avg 1.5dB max	0dB avg 1.5dB max	-4dB nom.	0dB avg 1.5dB max	0dB avg 1.5dB max	0dB avg 1.5dB max	0dB avg 1.5dB max	-	-
	DDS/HCC Digital PBX- PBX 4-Wire	-3dB avg -1.5dB max	-3dB avg -1.5dB max	-7dB nom.	-	0dB avg 1.5dB max	0dB avg 1.5dB max	0dB avg 1.5dB max	-	-
PSDS (I)		-3dB avg -1.5dB max	-3dB avg -1.5dB max	-7dB nom.	0dB avg 1.5dB max	0dB avg 1.5dB max	0dB avg 1.5dB max	0dB avg 1.5dB max	-	-
RTE (B)		-2dB avg -0.5dB max	-2dB avg -0.5dB max	-6dB nom.	-3dB avg -1.5dB max	-3dB avg -1.5dB max	-3dB avg -1.5dB max	0dB avg 1.5dB max	0dB avg 1.5dB max	-3dB avg -1.5dB max
OPS 2-W (B)		-2dB avg -0.5dB max	-2dB avg -0.5dB max	-6dB nom.	0dB avg 1.5dB max	0dB avg 1.5dB max	0dB avg 1.5dB max	0dB avg 1.5dB max	0dB avg 1.5dB max	0dB avg 1.5dB max
Public Switch Net 2-W		-	-	-	-	-	-	0dB avg 1.5dB max	-	-
HCC Digital PBX-CO 4-W		-	-	-	-	-	-	0dB avg 1.5dB max	-	-

* * *

(b) (7) (ii) (C), a table is proposed to be inserted after the colon, as follows:

: R2 + RL :		

CONDITION	CLASS B	CLASS C

1	600	1300
2	1800	2500

* * *

(f) (2) (ii) the second line of the table is proposed to be corrected to read: 120 kHz to 266 kHz

(h) (2) (v) Encoded analog content. If registered terminal equipment connected to 1.5544 Mbps digital service or to ISDN PRA service contains an analog-to-digital converter, or generates signals in digital form which are intended for eventual conversion to voiceband analog signals, the encoded analog content of the subrate channels of the ISDN information bearing channels within the 1.544 Mbps signal must be limited.

* * *

(h) (3) (i) Pulse Repetition Rate. For PSDS (Type II) the pulse repetition rate shall be the maximum of 144,000 pulses per second +/- 5 pulses per second; for PSDS (Type III) the pulse repetition rate shall be a maximum of 160,000 pulses per second +/- 5 pulses per second.

(h) (3) (ii) Template for Maximum Output Pulse. When applied to a 135 ohm resistor, the instantaneous amplitude of the largest isolated output pulse obtainable from the registered terminal equipment shall fall within the template of Table IV(A) for PSDS Type II or Table IV(B) for PSDS Type III. The limiting pulse template shall be defined by passing an ideal 50% duty cycle rectangular pulse within the amplitude/pulse rate characteristics of Table IV(A) or Table IV(B) through a 1-pole low-pass filter with a 3dB frequency of 260 kHz.

(h) (3) (iii) The registered terminal equipment shall be capable of producing 0 patterns of scrambled data bursts as follows:

(a) PSDS Type II Scrambler. Scrambled data bursts shall be produced by applying exclusive OR logic to the sum of the data and spare bits of the burst and each of eight predefined masks. The scrambling masks are a pseudo-random binary sequence 196 bits in length. The 8 scrambling masks are formed from the sequence of 1568 bits generated by the recursion equation:

$$x(s) = x(n-2) \oplus x(n-11)$$

where \oplus represents the OR operation. The initial conditions for the recursion formula are:

$$\begin{array}{lll} x(n-1) = 1 & x(n-5) = 0 & x(n-9) = 1 \\ x(n-2) = 0 & x(n-6) = 1 & x(n-10) = 0 \\ x(n-3) = 0 & x(n-7) = 1 & x(n-11) = 1 \\ x(n-4) = 0 & x(n-8) = 0 & \end{array}$$

(b) PSDS Type III Scrambler. Scrambled data bursts shall be produced by a scrambler that is frame synchronized with start and stop bits. An exclusive OR with pseudo-random bit pattern is applied to 72 bits. This applies to both the transmitted data and the received data. Prior to the data being encoded into bipolar form and being transmitted it is fed into one of the inputs of a two-input exclusive OR gate with the bit pattern fed into the second input coming from the pseudo-random generator. The start and stop bits are not passed through the scrambler or descrambler. The bit pattern the generator creates is given in Table V.

(h) (4) Limitations on terminal equipment connected to ISDN BRA. If registered terminal equipment connecting to ISDN BRA services contains a digital-to-analog converter, or generates signals directly in digital form, which are intended for eventual conversion into voiceband analog signals, the encoded analog content of the digital signal must be limited. The maximum equivalent power of the encoded analog signals, other than live voice, as derived by a zero-level decoder test configuration, shall not exceed -12dBm when averaged over a 3-second interval. The maximum equivalent power of encoded analog signals, as derived by a zero-level decoder test configuration, for network control signaling, shall not exceed -3dBm when averaged over any three-second interval.

* * * * *

Table V
PSDS Type III Scrambler Bit Pattern

Bit Count	Value	Bit Count	Value	Bit Count	Value	Bit Count	Value
0	1	19	1	37	0	56	0
1	0	20	1	38	0	57	1
2	1	21	0	39	1	58	0
3	1	22	1	40	1	59	1
4	0	23	1	41	0	60	1
5	1	24	0	42	1	61	0
6	1	25	1	43	1	62	0
7	0	26	0	44	1	63	1
8	0	27	0	45	0	64	1
9	0	28	1	46	1	65	1
10	1	29	1	47	0	66	0
11	0	30	1	48	0	67	0
12	1	31	1	49	0	68	1
13	0	32	0	50	1	69	1
14	0	33	0	51	0	70	0
15	0	34	0	52	0	71	0
16	0	35	0	53	0		
17	0	36	1	54	1		
18	1	37	1	55	1		

15. Section 68.310, 47 C.F.R. § 68.310, is proposed to be corrected to revise the table in Section 68.310(a) as follows:

Paragraph	Equipment State	Minimum Balance Requirement, dB	Frequency Range, Hz
(b)	On-hook	60	200 - 1000
	On-hook	40	1000 - 4000
	Off-hook	40	200 - 4000
(c)	On-hook	60	200 - 1000
	On-hook	40	1000 - 4000
	Off-hook	40	200 - 4000
(d)	Off-hook	40	200 - 4000
(e) Voice Equipment	On-hook	60	200 - 1000
	On-hook	40	1000 - 4000
	Off-hook	40	200 - 4000
(e) Data Equipment	On-hook	60	200 - 1000
	On-hook	40	1000 - 4000
	Off-hook	40	200 - 4000
(f)	Off-hook	40	200 - 4000
(g)	On-hook	60	200 - 1000
	On-hook	40	1000 - 4000
	Off-hook	40	200 - 4000
(h)	Off-hook	40	200 - 1000
(i)	On-hook	60	200 - 1000
	On-hook	40	1000 - 4000
	Off-hook	40	200 - 4000
(j)	Off-hook	40	200 - 4000

16. 68.310, 47 C.F.R. § 68.310, is proposed to be amended to show a correction in the second sentence is Section 68.310(i) as follows:

The pair not under test shall be terminated in a metallic impedance of 600 ohms.

17. Section 68.310, 47 C.F.R. § 68.310, is proposed to be amended to revise paragraph (1) by replacing the last sentence with the following:

The metallic termination used for the longitudinal balance measurements for

* * *

The metallic termination used for the longitudinal balance measurements for subrate, ISDN (BRA) and PSDS shall be 135 ohms +/- 1% and for 1.544 Mbps and ISDN (PRA) shall be 100 ohms +/- 1%. The longitudinal termination for these measurements shall be 90 ohms in all cases

* * * * *

18. Section 68.312 is proposed to be amended by revising paragraph (b), paragraph (b) (2), (c) (2) and (h) to read as follows:

* * * * *

(b) Limitations on individual equipment intended for operation on loop-start telephone facilities, including PSDS Type II in the analog mode:

* * *

(2) Registered terminal equipment and registered protective circuitry intended for use on facilities which will always have ringing detection circuitry in use at the same time such registered terminal equipment and registered protective circuitry is connected need not comply with the 40 kilohm maximum impedance specification of paragraph (b) (1) (iv) of this section.

* * *

(c) (2), the reference to Section 68.312(a) (2) should be changed to Section 68.312(b) (2).

* * *

(h) PBX ringing supplies whose output appears on the off-premises interface leads shall not trip when connected to the following tip-to-ring impedance which terminates the off-premises station loop:

* * * * *

19. Section 68.314 is proposed to be amended to revise paragraphs (a), (a) (3), (b), (c), (c) (3), (d) (d) (2), (d) (3) and (f) as follows:

(a) Call duration requirements on data equipment connected to the public switched network or to tie trunks, or to private lines that access the public switched network, or the PSDS Types I, II or III.

* * *

(a) (3) Equipment connected to the PSDS (Types I, II and III). When an incoming PSDS call is answered, both transmission and reception of data shall be prevented for at least 2 seconds after the answering terminal transfers to the off-hook condition. Fixed sequences of signals transmitted and/or received as specified in Section 68.314(a) (2) (i through iv) are excluded. These requirements do not apply to equipment that uses manually activated circuitry to request the

switch from analog to digital mode (for PSDS Type II equipment).

(b) Voice and data equipment on-hook signal requirements for equipment connected to the public switched network, or to tie trunks, or to private lines that access the public switched network, or PSDS (Types I, II or III):

* * *

(c) Voice and data equipment loop current requirements for equipment connected to the public switched network or PSDS (Types I, II or III):

* * *

(c)(3) Terminal equipment connected to PSDS Type II shall comply with the requirements of (1) and (2) above, when it enters the analog mode in response to ringing (called party condition), except that the time restriction shall be at least two seconds (instead of five seconds).

* * *

(d)(2) Registered terminal equipment for connection to subrate, 1.544 Mbps, ISDN (BRA or PRA) digital services shall not deliver digital signals to the telephone network with encoded analog content energy in the 2450 to 2750 Hertz band unless and equal amount of encoded analog energy is present in the 800 to 2450 Hertz band.

(d)(3) Terminal equipment connected to PSDS (Types I, II or III) shall not deliver digital signals to the telephone network with encoded analog energy in the 2450 Hertz band unless an equal amount of encoded analog energy is present in the 800 to 2450 Hertz band.

* * *

(f) On-hook signal requirements for registered terminal equipment for connection to ISDN (BRA or PRA), subrate or 1.544 Mbps digital services:

* * * * *